ecology and environment, inc.
CLOVERLEAF BUILDING 3, 6405 METCALF, OVERLAND PARK, KANSAS 66202, TEL. 913/432-9961
International Specialists in the Environment

RECEIVED
JUN 24 1988
CMPL SECTION

MEMORANDUM

TO: Paul Doherty, RPO

THRU: Sharon Martin, AFITOM

FROM: Eric Hess, E & E/FIT

DATE: June 23, 1988

SUBJECT: HRS Considerations and Recommendations for further work at the Mound St. Power site (aka LaClede Gas), St. Louis, Missouri
TDD #F-07-8708-29 PAN #FM00579PA
Site #Y33 Project #001
Superfund Contact: Pauletta R. France-Isetts

The results of the St. Louis Department of Health and the E & E/FIT sampling show that there is no PCB contamination of the oils in the basement of this former electric power plant facility. This conclusion is qualified by the fact that PCB detection limits were 1 ppm for the E & E/FIT data and that they are not known for the city of St. Louis data. Concentrations of PCB below the 1 ppm detection limit are possible in the samples collected by the FIT. However, no evidence was found to suggest that the oil in the basement may contain PCB. Initial concerns were based on the existence of large electric transformers on the site. Information obtained during the FIT investigation suggests that the oil in these transformers was moved off site. The most likely source of the oil is the Apex Oil Terminal located several yards uphill from the former electric power plant. This material is contained in a concrete basement and could easily be removed and sent to an oil recycling facility. Because this waste is contained, a removal operation could be undertaken readily and would be the most cost-effective approach for mitigating the oil contamination and circumventing further releases into the Mississippi River. The E & E/FIT does not recommend that a site investigation of the oil contamination be conducted.

The unexpected discovery of perhaps the largest coal gas plant site in Region VII, LaClede Gas and Light Company, mandates the E & E/FIT recommendation that a site investigation be conducted at this site. Currently, the Mound St. site is regarded as only the former plant facility. The clarification of site historical records suggests that the Mound St. site also should include the coal gasification works. Regardless of the final grouping of the power plant site and the gas works site, a site investigation should be conducted at the former LaClede Gas and Light Company.

The overall draft HRS score for this site was calculated to be 0.00, based solely on route characteristics. The low score reflects a

0824
30283238
Superfund
0000
1.0
ES

recycled paper

lack of targets, documented contamination, and observed releases. The ground water route score is 0.0. If a release could be documented and some ground water use could be identified, this route score would increase to 6.12. The surface water route score is 0.0. If a release could be documented and industrial use of surface water confirmed, the route score would increase to 18.18. The nature of contaminants and the probable disposal methods used at this facility introduces the possibility for an air release of particulates. If this can be documented, the air route will score 55.64.

Assuming that observed releases and targets could be documented for the surface ground water, and air routes, the highest HRS score expected is approximately 34.75. This score is well above the score of 28.5 required for inclusion on the National Priorities List (NPL). However, if a lower socre is determined, it may not reflect the true potential hazard posed by this site: large amounts of waste may exist on site and they may be releasing PAHs, phenols, and cyanides into local ground and surface water. HRS-II guidelines, slated for implementation in October 1988, would add potential environmental and food chain scores. HRS-II would also allow scoring the risk posed by the migration of contaminated particulates. Addition of these elements could increase the HRS score. Currently, no score "threshold" has been established for HRS-II. Therefore, there is no method to predict the potential for this site to score high enough for inclusion on the NPL under the auspices of HRS-II rules.

Regardless of the current HRS score, or the potential HRS-II score, this site is likely to be having a deleterious effect on the local environment. The degree of this effect can only be assessed through soil sampling, ground water monitoring, and the installation of seepage meters to document ground water releases into the Mississippi River. It is recommended that this additional work be assigned a medium priority, based on the potential for direct contact/inhalation hazards and the potential for food chain contamination.

DRAFT

Facility Name: MOUND STREET POWER PLANT

Location: ST. LOUIS, MISSOURI

EPA Region: VII

Person(s) in charge of the facility: Herman Gellman, President MSC
3620 North Hall Street
St. Louis, MO 63147

Name of Reviewer: Otavio Silva **Date:** 5/25/88

General description of the facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The Mound Street Power Plant is located in St. Louis, MO, approximately one mile north of the St. Louis Arch, along the Mississippi River (Ref. 1). The facility is located in an industrial area adjacent to the river. Several large grain storage facilities are all located within 1/4 mile of the facility. The tank farm is adjacent to the power plant, separated by several yards of paved road. Currently, the site is occupied by the former Mound St. Power Plant building, and the Apex Oil Company St. Louis Terminal (Ref. 2, Page 2-2). The site is not secured and access to the buildings is relatively unrestricted. Aside from locks on most doors and a fence surrounding the petroleum storage tanks, no security is present. A former coal gasification

Scores: S_M = (S_{gw} = S_{sw} = S_a =)

S_{FE} =

S_{DC} =

FIGURE 1
HRS COVER SHEET

RECEIVED
JUN 24 1988
CMPL SECTION

DRAFT

CONTINUED

facility (Laclede Gas co.) is located on this site. The coal gasification facility was evaluated for HRS purposes. Wastes associated with coal gas sites include cyanides, metals and polynuclear aromatic hydrocarbons. The Mound St. Power Plant facility exhibits petroleum contamination only. Samples from this site were screened for PCB contamination. No PCB contamination was detected.

FIT QUALITY ASSURANCE TEAM

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

DRAFT

INSTRUCTIONS: As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: Mound Street Power Plant

LOCATION: St. Louis, Missouri

DATE SCORED: April 1, 1988

PERSON SCORING: Otavio Silva

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

Preliminary Assessment of the Mound Street Power Plant site, TDD # F-07-8708-29, PAN # FM00579PA; prepared by E & E/FIT for Region VII EPA, February 11, 1988.

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air Route
Fire and Explosion
Direct Contact

COMMENTS OR QUALIFICATIONS:

This is a draft HRS. The low score for this site is primarily due to the fact that there are no population targets, there are no observed releases, and no documentation of leaking containment is presently available.

DRAFT

GROUND WATER ROUTE

1. OBSERVED RELEASE

Contaminants detected (5 maximum):

Unknown - coal tar waste are potentially buried in unlined pits or stored in leaking containers (Ref. 2, Page A-1).

Rationale for attributing the contaminants to the facility:

NA

* * *

SCORE = 0

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

The potential aquifers of concern for the site region are divided into five discrete units: Post-Maquoketa, Kimmswick Joachim, St. Peter-Everton, Powell-Gasconade, and Eminence-Lamotte. The Post-Maquoketa group includes the strata above the Kimmswick formation to the surface. Below this aquifer group lies the Maquoketa Shale. Based on current information, the shale acts as an aquitard. Group two is the Ordovician Age Kimmswick-Joachim Aquifer. Near the top of this unit is the Decordy Formation which probably acts as a confining bed composed of shales and interbedded limestones. The remaining lower three aquifers are separated primarily on the basis of unconformities. It is likely these aquifer groups, in descending order, the St. Peter-Everton, Powell-Gasconade and the Eminence-Lamotte are hydraulically connected (Ref. 2, Pages 4-7 and 4-8).

For the purposes of this HRS only the alluvial aquifer, the Kimmswick Formation, will be considered as the aquifer of concern since they are hydrologically separated from the lower aquifer.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

6 Feet (Ref. 3, Page 34)

Depth from the ground surface to the lowest point of waste disposal/ storage:

Wastes are potentially buried below the water table. The maximum depth of burial is unknown. (Ref. 2, Page 2-12).

SCORE = 3

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

33.91 inches (Ref. 4)

Mean annual lake or seasonal evaporation (list months for seasonal):

35.6 inches (Ref. 5, Page 63)

Net precipitation (subtract the above figures):

33.91 - 35.60 = -1.69 inches
(-10 to 5 inches, Ref. 6, Page 12)

DRAFT

SCORE = 1

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

The soils in the area are classified as fine loams to fine silty clays loams. On site, the soils belong to the urban land-bottom land unit. This unit consists of areas in which more than 85% of surface covered by asphalt, concrete, buildings or other impervious material. The area was originally bottom land which was built-up to protect the site from flooding. The amount of fill in the area can range from 0 to 200 feet. Variability of the soils in the area makes identification impractical without a detailed on-site soil investigation.

Permeability associated with soil type:

Fine loams to fine silty clays loames (Ref. 2, Page 4-1). The best classification for approximate range of hydraulic conductivity fits on 10^{-5} cm/sec (Ref. 6, Page 15).

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Coal Tar (Sludge/liquid)
Fuel Oil or Transformer Oil (Oily Waste)
Cyanide Salts (inorganic chemicals) solids
(Ref. 2, A-1)

SCORE = 3

* * *

DRAFT

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

1) Two coal tar tanks with a combined volume of 107688 gallons. However, it is likely that the tanks have leaked.

2) Burial pits for the lower ends of coal tar are likely. No documenation of waste or leaking containment is available.

Method with highest score:

SCORE = 0

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Coal Tar -- Benzo(A)pyrene--18 (Ref. 7)
Xylene----------18
Cyanide---------18

Compound with highest score:

Benzo(A)pyrene

SCORE = 18

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Two Tar Tanks containing 53844 gallons each (full several times a year)
Oxide Wastes - unknown
Tar burial - unknown

Basis of estimating and/or computing waste quantity:

Since no documentation of leaks exist this route characteristic score = 0

SCORE = 0

* * *

DRAFT

5. TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Ground water used for commercial or industrial needs. The water needs of the city and surrounding community are met primarily through the withdrawal of surface water from the Missouri Mississippi and Meramac Rivers. The municipal water intakes for the city of St. Louis and surrounding communities are approximately 9 miles upstream from the site (Ref. 2, Page 4-7).

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

None, since there is not any ground water usage.

Distance to above well or building:

None

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

None

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

None expected due to the dense urban nature around the site.

Total population served by ground water within a 3-mile radius:

None

SCORE = 3

DRAFT

SURFACE WATER ROUTE

1. OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Not evaluated since the potential wastes are buried and there is no known surface contamination.

Rationale for attributing the contaminants to the facility:

* * *

2. ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Name/description of nearest downslope surface water:

Average slope of terrain between facility and above-cited surface water body in percent:

Is the facility located either totally or partially in surface water?

DRAFT

Is the facility completely surrounded by areas of higher elevation?

1-Year 24-Hour Rainfall in Inches

Distance to Nearest Downslope Surface Water

Physical State of Waste

3. CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

DRAFT

4. WASTE CHARACTERISTICS

Toxicity and Persistence

Compounds(s) evaluated

Compound with highest score:

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Basis of estimating and/or computing waste quantity:

* * *

5. TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

DRAFT

Is there tidal influence?

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

DRAFT

Total population served:

Name/description of nearest of above water bodies:

Distance to above-cited intakes, measured in stream miles.

DRAFT

1. OBSERVED RELEASE

Contaminants detected:

No potential since the alleged wastes were buried and no surface contamination has been documented to date. In addition a levee precludes overland flow from entering the Mississippi River.

Date and location of detection of contaminants:

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

DRAFT

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3. TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

DRAFT

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

NOT EVALUATED

FIRE AND EXPLOSION

DRAFT

1. CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

* * *

2. WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

* * *

NOT EVALUATED

DRAFT

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

NOT EVALUATED

DRAFT

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

NOT EVALUATED

DIRECT CONTACT

DRAFT

1. OBSERVED INCIDENT

Date, location, and pertinent details of incident:

* * *

2. ACCESSIBILITY

Describe type of barrier(s):

* * *

3. CONTAINMENT

Type of containment, if applicable:

* * *

4. WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Compound with highest score:

* * *

NOT EVALUATED

DRAFT

5. TARGETS

Population within one-mile radius

Distance to critical habitat (of endangered species)

DRAFT

HRS DOCUMENT LOG SHEET SITE NAME Mound Street Power Plant
CITY St. Louis STATE MO
IDENTIFICATION NUMBER

REFERENCE NUMBER	DESCRIPTION OF REFERENCE
1	USGS Topographic Map, Granite city, Ill.-Mo., 7.5 Minute Quadrangle, 1968 Revised
2	Preliminary Assessment of the Mound Street Power Plant Site, TDD # F-07-8708-29, PAN # FM00579PA; Prepared by E & E/FIT for Region VII EPA, February 11, 1988.
3	USDA and SCS, Soil Survey of St. Louis County and St. Louis City, MO, April 1982
4	NOAA (National Oceanic and Atmospheric Administration) Environmental Data and Information Service, and National Climatic Center, Climatography of the United States No. 81, Missouri, Asheville, N.C., September 1982.
5	U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Service, Climatic Atlas of the United States, 1979
6	The Mitre Corporation, Uncontrolled Hazardous Wastes Site Ranking System, A Users Manual, Virginia, August 1982.
7	Sax, Irving N., 1984, Dangerous Properties of Industrial Materials, New York, Van Nostrand Reinhold Co.

REGION VII FIT
SITE INSPECTION
HRS EVALUATION WORKSHEET

DRAFT

Site Name: Laclede Gas St. Louis City: St. Louis, MO

WST #07M00579 Site #Y33 CERCLIS #MOD

Date of PA Completion 04/21/88, by Eric Hess

Major Contaminant(s) Benzo(a)pyrene and cyanide

Scoring Scenarios	Current Score	Highest Score
Ground Water Route (Sgw) =	0.0	6.12
Surface Water Route (Sw) =	0.0	18.18
Air Route (Sa)	0.0	55.64
Total Score (Sm)	0.0	34.75

Potential Releases (Probability)

(H)	M	L	Nill	- Ground Water
(H)	M	L	Nill	- Surface Water
H	M	(L)	Nill	- Air
(H)	M	L	Nill	- On-Site/Direct Contact

HRS-2 Comments

Ground Water Route: Monitoring wells needed to document release. Hydrogeology evaluation. There are no ground water targets documented.

Surface Water Route: Seepage meters needed to document a ground water release to surface water recreation threat will raise the score.

Air Route: Particulate transport could pose a risk at this site. This would elevate the score to the estimated maximum 34.75. Potential to release evaluation may raise score also.

On-Site Route: There is a great possibility that PAH and cyanide contaminants are present in the surface soils found on site.

Probability to Score above 28.5 (after SI)
[ ] High [ ] Medium [X] Low

Priority For SI
[ ] High [X] Medium [ ] NFRAP

Comments: Although the site may not score above 28.5, the potential exists for the large amounts of wastes to be buried at this site. The existence of these wastes and their migration into the Mississippi River and the local environments should still pose a major concern for the maintenance of environmental quality.

Concurrence
[ ] ESD [ ] SPFD

DRAFT

***** GROUND WATER ROUTE WORK SHEET *****

	Current Score	Highest Score	Ref.	Comments
1. OBSERVED RELEASE	0	45		Release likely, need monitoring wells.
2. ROUTE CHARACTERISTICS				
DEPTH TO AQUIFER OF CONCERN (2)	6		2,3	
NET PRECIPITATION	1		4,5	
PERMEABILITY OF UNSATURATED ZONE	1		6	Soil sample needed
PHYSICAL STATE	3		2	
ROUTE CHARACT. SCORE =	11			
3. CONTAINMENT	0	3	2	Tank may have deteriorated or coal tar may have been disposed of in pits or trenches not yet identified or located. Possible surface oil spills.
4. WASTE CHARACTERISTICS				
TOXICITY/PERSISTENCE	18	18	2	Benzo(a)pyrene
HAZARDOUS WASTE QUANTITY	0	8	2	Highest score based on the identification of leaking tanks.
WASTE CHARACT. SCORE =	23	26		
5. TARGETS				
GROUND WATER USE (3)	3	3	2	Industrial and commercial
DISTANCE TO NEAREST WELL/ POPULATION SERVED	0	0	2	No drinking water wells
TOTAL TARGETS SCORE =	3	3		
GROUND WATER ROUTE SCORE = (57,330/100 factor	0.0	6.12		

( ) Multiplier

DRAFT

***** SURFACE WATER ROUTE WORK SHEET ******

	Current Score	Highest Score	Ref.	Comments
1. OBSERVED RELEASE	0	45		
2. ROUTE CHARACTERISTICS				
FACILITY SLOPE AND INTERVENING TERRAIN	0	0	2	
1-yr., 24-hr. RAINFALL	0	0	6	
DISTANCE TO NEAREST SURFACE WATER (2)	0	0	2	Mississippi River
PHYSICAL STATE	0	0		
ROUTE CHARACT. SCORE =	0	0		
3. CONTAINMENT	0	3	2	Same as Ground Water Routes
4. WASTE CHARACTERISTICS				
TOXICITY PERSISTENCE	18	18	2	
HAZ. WASTE QUANTITY	0	8	2	If oxide waste found tanks determine to have leaked and burial of tar is verified
WASTE CHARACT. SCORE =	23	26		HRS II evaluation may give different score
5. TARGETS				
SURFACE WATER USE (3)	3	6	2	If recreation use documented
DISTANCE TO A SENSITIVE ENVIRONMENT (2)	0	0	2	HRS II = Score
POPULATION SERVED/DISTANCE TO DOWNSTREAM WATER INTAKE	0	4	2	
TOTAL TARGETS SCORE =	6	10		
SURFACE WATER ROUTE SCORE = (64,350/100 factor)	0.0	18.18		

( ) Multiplier

DRAFT

***** AIR ROUTE WORK SHEET *****

	Current Score	Highest Score	Ref.	Comments
1. OBSERVED RELEASE DATE AND LOCATION	0	45		Hi-vol sampling for particulates. If surface contamination is documented
2. WASTE CHARACTERISTICS				
REACTIVITY AND INCOMPATIBILITY	1		1	
TOXICITY (3)	3	30		Cyanide in surface soils
HAZARDOUS WASTE QUANTITY	5	50		Assume contents of tanks leaked ~ 2,100 drums
WASTE CHARACT. SCORE =	8	80		
3. TARGETS				
POPULATION WITHIN 4 MILES	27	27		> 10,00 within 1 mile radius
DISTANCE TO SENSITIVE ENVIRONMENT (2)	0	0		
LAND USE	3	30		Commercial/industrial use within 1/4 mile
TOTAL TARGETS SCORE =	30	30		
AIR ROUTE SCORE = (35,100/100 factor)	0	55.64		

( ) Multiplier

DRAFT

CURRENT SCORE	S	S^2
Groundwater Route Score (S_{gw})	0.00	0.00
Surface Water Route Score (S_{sw})	0.00	0.00
Air Route Score (S_a)	0.00	0.00
$S_{gw}^2 + S_{sw}^2 + S_a^2$		0.00
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		0.00
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		0.00

HIGHEST SCORE	S	S^2
Groundwater Route Score (S_{gw})	14.29	204.08
Surface Water Route Score (S_{sw})	18.18	330.58
Air Route Score (S_a)	55.64	3,079.12
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3,613.78
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		60.11
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		34.75